SOUTHWESTERN OIL AND GAS COMPANY

Hagan, No. 3

Topographic location: 500' East of 82° 30'; 7500' South of 36° 55'. Wise County, Virginia.

Elevation: 2600' (ground).

Total Depth: 5348' (plugged to 5000').

Interval	Lithology
0-50	No sample.
50-105	Sandstone, very light gray (N8), very fine-grained to fine-grained, subangular to subrounded, grains milky, micaceous; and shale, dark gray (N3), with some coal.
105-114	Shale, dark gray (N3), fissile, finely micaceous.
114-117	Coal, vitrain and clarain (?).
117-135	Sandstone, light gray (N7), fine-grained, silty cement, micaceous, with abundant black mineral and brown mineral (siderite?).
135-195	Siltstone, medium dark gray (N4), micaceous, sandy; and shale, dark gray (N3), fissile.
195-207	Sandstone, light gray (N7), fine-grained to medium-grained, very micaceous with little black mineral and abundant brown mineral (siderite).
207-210	Coal, vitrain (?).
210-258	Sandstone, medium light gray (N6), fine-grained, subangular, micaceous, with little black mineral.
258-269	Sandstone, light gray (N7), very fine-grained to medium-grained, subangular, micaceous, abundant black mineral and little green mineral.
269-278	Shale, medium dark gray (N4), very micaceous, fissile; and shale, brownish gray (5YR 4/1), very sideritic.
278-281	Coal, impure.

Interval

281-415 Sandstone, light gray (N7), fine-grained to medium-grained, subangular, scattered black mineral; sandstone, medium light gray (N6), very fine-grained to fine-grained, subangular, calcareous; siltstone, medium gray (N5), micaceous, sideritic; little shale, very dark red (5R 2/6); and little coal (cavings?).

370 Sandstone, white (N9), fine-grained to medium-grained, with few coarse grains, subangular to subrounded, clear grains, porous, with little black mineral.

380 Sandstone, like 370.

415-419 Coal.

419-482 Sandstone, very light gray (N8), fine-grained to medium-grained, with abundant coarse-grained, and quartz pebble chips, subangular to subrounded, grains mostly but some coarse milky grains, scattered black mineral, and some limonitic stain.

482-500 Shale, dark gray (N3) to grayish black (N2), finely micaceous, fissile, with little coal.

500-530 Siltstone, medium gray (N5) to medium light gray (N6), micaceous, sandy, with sideritic nodules.

530-640 Sandstone, medium light gray (N6), fine-grained, subangular, slightly micaceous with little black mineral, and little green mineral.

640-650 Sandstone, medium gray (N5), very fine-grained to fine-grained, subangular, poorly sorted, contains abundant mica, black mineral, and silty impurities, slightly calcareous, 60% quartzose.

650-760 Sandstone, very light gray (N8), very fine-grained, to fine-grained, subangular with few round grains, friable, grains clear to milky, little black mineral, and fairly abundant green mineral.

760-770 Siltstone, medium dark gray (N4), fine, slightly micaceous; and siltstone, dark greenish gray (5G 6/1), sandy to shaly.

770-771 Shale, dusky red (5R 3/4) silty, micaceous; and shale, grayish red (10R 4/2) sideritic.

771-785 Shale, dusky red, and grayish red, like 770-771 with some greenish gray (5GY 6/1), very fine-grained sandstone.

785-802 Siltstone, greenish gray (5G 6/1), slightly calcareous, (sample consists of unconsolidated silt. May be contamination from above).

Interval	
802-817	Shale, dark gray (N3), micaceous, calcareous.
817-820	Shale, dark gray (N3), micaceous, calcareous.
820-840	Siltstone, greenish gray (5GY 6/1), very calcareous.
840-858	Siltstone, grayish red (10R 4/2), very sandy, very calcareous, (calcite clusters), abundant white to yellowish chert.
858-885	Sandstone, pale yellowish brown (10YR 6/2), very fine-grained (silty), subangular, calcareous, micaceous, abundant limonitic, stain.
885-913	Limestone, greenish gray (5G 6/1), silty; and limestone, dusky red (5R 3/4), silty, sugary, both grade into greenish gray and dusky red slightly calcareous siltstone.
913-922	Siltstone, dark greenish gray (5G 6/1), very micaceous, calcareous.
922-935	Shale, dark gray (N3), silty, micaceous; and shale, dusky red (5R 3/4), micaceous, some very calcareous.
935-955	Siltstone, dark greenish gray (5GY 4/1) and dusky red (5R 3/4), micaceous, some sideritic, some very calcareous zones, (possibly mottled).
955-967	Shale, dusky red (5R 3/4), sideritic, 50% is very calcareous; 50% non-calcareous.
967-1018	Sandstone, light greenish gray (5G 8/1), fine-grained, subangular to subrounded, thin-bedded, platy, slighily micaceous, abundant green mineral and little black mineral.
1018-1031	Shale, greenish black (5GY 2/1) to brownish gray (5YR 4/1), brownish phase sideritic.
1031-1070	Sandstone, light gray (N7), very fine-grained to fine-grained, subangular, poorly sorted, silty, micaceous, scattered black mineral; siltstone, medium dark gray (N4), micaceous, calcareous, sandy.
1070-1087	Siltstone, like 1031-1070; and shale, dark gray (N3), silty, very micaceous.
1087-1195	Siltstone, medium dark gray (N4), non-calcareous, fine, micaceous to sandy, quartzose.
1195-1237	Sandstone, light gray (N7), calcareous to medium grey (N5), non-calcareous, fine-grained, subangular, platy, micaceous, abundant black mineral.

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Interval	
1237-1322	Shale, dark gray (N3), fissile, finely micaceous, slightly calcarous.
1322-1350	Shale, dark gray (N3), very calcareous, micaceous.
1350-1390	Sandstone, very light gray (N8), very fine-grained to fine-grained, subangular to subrounded, fairly well sorted, slightly porous, calcareous, little black mineral and green mineral., 3/4 quartzose.
1390-1392	Shale, dark gray (N3), lumpy, finely micaceous.
1392-1416	Sandstone, light gray (N7), conglomeratic, fine-grained to medium-grained with abundant pebble chips, subangular to subrounded, (granules and pebbles well rounded), fairly well sorted, fairly porous, calcareous, little black mineral and little green mineral, 90% quartzose.
1416-1452	Shale, dark gray (N3), fissile, calcareous with some limestone, dark gray (N3), silty.
1452-1460	Sandstone, very light gray (N8), very fine-grained, subangular, fairly well sorted, very slightly porous, calcareous, micaceous with scattered zones of black mineral, 3/4 quartzose.
1460-1642	Shale, grayish black (N2).
1462-1495	Sandstone, very light gray (N8), very fine-grained, angular to subangular, platy, poorly sorted, very slightly perous, scatterd black mineral and mica, 90% quartzose.
1495-1519	Sandstone, like 1462-1495; and shale, dark gray (N3), silty, micaceous, fairly fissile, (interbedded).
1519-1566	Sandstone, white (N9), very fine-grained to fine-grained, well sorted, porous, friable, clear grains, abundant limonitic stain, 95% quartzose.
1566-1583	Limestone, dark gray (N3), silty, (sample contaminated by overlying lithologies).
(Bottom).	

Samples examined by Allen D. Williamsonk
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